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(54) **Adjustable highchair**

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Chaise haute réglable

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(56) References cited:
EP-A- 0 755 642 **DE-A- 3 304 443**
US-A- 5 445 432

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Description

[0001] The present invention relates to an adjustable highchair.

[0002] Adjustable highchairs for children are commercially known which allow to adjust the height and inclination of the seat as required.

[0003] However, adjusting the position of the seat is not always easy and requires a certain effort on the part of the adult, who sometimes is an elderly person. A certain skill is also required to operate the adjustment mechanisms, the operation whereof is not always easy.

[0004] Adjustable chairs are disclosed, for example, in EP-A-0 755 642 and US-A-5 445 432.

[0005] The aim of the present invention is to provide an adjustable highchair which is simpler and quicker to adjust than conventional highchairs.

[0006] Within this aim, an object of the invention is to provide a highchair which allows to adjust the height of the seat by acting only on the seat itself.

[0007] A particular object of the invention is to provide a highchair which allows to adjust the position of the seat without forcing the user to bend or in any case perform particular efforts.

[0008] Another object of the invention is to provide a highchair in which the operation of the means for adjusting the position of the seat is immediately understandable.

[0009] Another object is to provide a highchair which is structurally strong and at the same time lightweight and easy to fold.

[0010] This aim, these objects and others which will become apparent hereinafter are achieved by an adjustable highchair, according to the present invention, which has the features set forth in claim 1.

[0011] Further characteristics and advantages of the invention will become apparent from the description of a preferred but not exclusive embodiment of the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a side elevation view of an adjustable highchair according to the invention in the open position;

Figure 2 is a partial front elevation view of the adjustable highchair according to the invention, in the open position;

Figure 3 is a side elevation view of the adjustable highchair according to the invention, in the closed or folded position;

Figure 4 is a sectional enlarged-scale side elevation view of the detail of the means for adjusting the height of the seat;

Figure 5 is a partially sectional plan view of the detail of Figure 4;

Figure 6 is a front view of the detail of Figure 4;

Figure 7 is a partially sectional enlarged-scale side elevation view of the detail of the means for adjust-

ing the inclination of the seat;

Figure 8 is a partial view, similar to Figure 1, of the seat showing different inclinations.

[0012] With reference to the above figures, the adjustable highchair according to the invention, generally designated by the reference numeral 1, comprises a folding articulated frame 3 provided with an articulation 5 which can be locked in at least one open position (Figure 1) and at least on closed or folded position (Figure 3).

[0013] The frame 3 supports a seat 7, which is advantageously provided with armrests 9 which are adapted to support an optional surface or tray (not shown). The seat 7 is associated with the frame 3 through means 11 for adjusting the height of the seat from the ground and means 13 for adjusting the inclination of the seat.

[0014] The seat 7 is pivoted to a horizontal supporting bar 15 which is in turn associated with sliding blocks 17 which are adapted to slide along the front legs 19 of the frame. Each sliding block 17 comprises a chamber 21 for accommodating a lever 23 which comprises a hook 25 which is adapted to protrude from a hole 27 and to engage a hole 29 of a plurality of holes 29 formed along the leg 19 of the frame.

[0015] The hook 25 is normally kept in the locking position, i.e., in the position for engaging the hole 29, by a spring 31. In order to disengage the hook from the hole disengagement means are provided which are constituted by a cable 33 slideable in a sheath 35. A first end of said cable is fixed to the lever 23 and a second end of said cable is associated with an actuation button 37, advantageously associated with the back 39 of the seat 7 in a position which is handy for actuation on the part of an adult.

[0016] The sliding block also comprises a wheel 41 which is slideable on the front part of the leg 19 and is protected by a housing 43. The wheel 41 facilitates the sliding of the sliding block along the leg 19, avoiding any jamming.

[0017] A spacer 45 connects the two sliding blocks 17 in order to strengthen the structure.

[0018] The means 13 for adjusting the inclination of the seat comprise a telescopic element 47 provided with an internal bar 49 which is associated with the sliding blocks 17 or with the spacer 45 and is slideable within a hollow bar 51, which is in turn associated with the seat 7. A hook-shaped lever 53 is associated with the hollow bar 51 and is adapted to engage, by means of a spring 55, one of a series of seats 57 formed along the internal bar 49, so that by selecting the seat that is engaged it is possible to vary the useful length of the telescopic element 47 and accordingly the inclination of the seat 7 with respect to the frame 3, as shown more clearly in Figure 8.

[0019] The hook-shaped lever 53 can advantageously be actuated by means of a button 59 which is associated with the hook-shaped lever 53 by means of a sheathed cable 61 which is similar to the cable 33. In

this manner, the inclination of the seat 7 can be changed easily by gripping the back 39 and acting on the button 59 to release the hook-shaped lever 53, allowing the elongation or retraction of the telescopic element 47.

[0020] As shown more clearly in Figure 3, the high-chair 1 can be easily folded for transport or when not in use simply by acting on the articulation 5 and closing the legs of the frame. The armrests 9 can of course be folded as well. It is also noted that the armrests 9, during use of the highchair, remain horizontal at all times regardless of the inclination of the seat 7, as shown in figure 8.

[0021] During the use of the highchair, the height of the seat from the ground can be changed very easily by means of the buttons 37, which are advantageously arranged on the rear part and optionally on the lateral part of the back 39 of the seat 7, so that an adult can simply grip the seat without bending down, act on the buttons 37 and adjust the height of said seat.

[0022] In practice it has been found that the invention achieves the intended aim and objects, an adjustable highchair having been provided which has means for adjusting the height of the seat and its inclination which make said adjustments very quick and easy.

[0023] It is evident that the presence of the actuation buttons on the back of the seat allows to adjust the position of the seat without forcing the adult to bend down and drastically reduces the effort required. The actuation of the buttons is furthermore self-evident and requires no particular skill on the part of the user, who merely has to grip the back with his hands and, whilst pressing the buttons for example with his thumbs, move the seat into the chosen position.

[0024] The adjustable highchair according to the invention is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims; all the details may furthermore be replaced with technically equivalent elements.

[0025] The materials employed, as well as the dimensions, may of course be any according to requirements and to the state of the art.

[0026] The disclosures in Italian Patent Application No. MI97A001948 from which this application claims priority are incorporated herein by reference.

[0027] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. An adjustable highchair, comprising a seat (7) which is associated with a frame (3) through means (11) for adjusting the height of the seat (7) and

means (13) for adjusting the inclination of the seat (7) and actuation means (37, 59) for said height adjustment means (11) and for said inclination adjustment means (13), said actuation means (59) for said inclination adjustment means (13) being arranged in an upward region of said seat (7) which can be accessed easily, **characterized in that** said actuation means (37) of said height adjustment means (11) is also arranged in an upward region of said seat that can be accessed easily.

2. The adjustable highchair according to claim 1, **characterized in that** said actuation means (37, 59) for said inclination and height adjustment means are arranged on the back (39) of the seat (7).

3. The adjustable highchair according to claim 2, **characterized in that** said actuation means (37, 59) for said inclination and height adjustment means are arranged on the rear of said seat (7).

4. The adjustable highchair according to claim 1, **characterized in that** said actuation means comprise at least one button (37, 59).

5. The adjustable highchair according to claim 4, **characterized in that** said actuation means comprise two buttons (37) which are associated, by way of respective sheathed cables (33, 35), with said means (11) for adjusting the height of the seat from the ground.

6. The adjustable highchair according to claim 4, **characterized in that** said actuation means comprise a button (59) which is associated, by means of a sheathed cable (61), with said means (13) for adjusting the inclination of the seat (7).

7. The adjustable highchair according to claims 1 or 5, **characterized in that** said means (11) for adjusting the height of the seat (7) from the ground comprise sliding blocks (17) which are slideable along legs (19) of said frame (3), each sliding block (17) comprising a lever (23) provided with a hook (25) which is adapted to engage a hole (29) of a plurality of holes (29) formed along the leg (19) of the frame (3), said hook (25) being normally kept in the position for engaging one of said holes (29) by an elastic element (31), said cable (33) that can slide in a sheath (35) having a first end which is fixed to said lever (23) and a second end which is associated with one of said actuation buttons (37).

8. The adjustable highchair according to claim 7, **characterized in that** each of said sliding blocks (17) also comprises a wheel (41) which can slide on the front part of the leg (19) to prevent jamming.

9. The adjustable highchair according to claim 8, **characterized in that** a spacer (45) connects two of said sliding blocks (17) which are slideable on respective legs (19) of said frame (3).
10. The adjustable highchair according to claim 6, **characterized in that** said means (13) for adjusting the inclination of the seat (7) comprise a telescopic element (47) which is provided with an internal hollow bar (49), associated with said sliding blocks (17), which is slideable inside a hollow bar (51) which is in turn associated with said seat (7); a hook-shaped lever (53) being associated with said hollow bar (51) and being adapted to engage, by means of an elastic element (55), one of a series of seats (57) formed along said hollow bar (49), so that by selecting the seat (57) that is engaged the useful length of the telescopic element (47) and therefore the inclination of the seat (7) with respect to the frame (3) can be varied.
11. The adjustable highchair according to claim 10, **characterized in that** said hook-shaped lever (53) can be actuated by way of a said actuation button (59) associated with said hook-shaped lever (53) by way of a sheathed cable (61).
12. The adjustable highchair according to claim 1, **characterized in that** said frame comprises at least two pairs of legs (19) which are mutually pivoted by way of two articulations (5) in order to allow a caliper-like opening of said legs (19) to use said highchair (1) or the closure of said legs (19) in order to reduce the overall dimensions of said frame (3).

Patentansprüche

1. Verstellbarer Hochstuhl, umfassend einen Sitz (7), der mit einem Gestell (3) durch Mittel (11) zum Verstellen der Höhe des Sitzes (7) und Mittel (13) zum Verstellen der Neigung des Sitzes (7) und durch Betätigungsmittel (37, 59) für die Mittel (11) zum Verstellen der Höhe und für die Mittel (13) zum Verstellen der Neigung verbunden ist, wobei die Betätigungsmittel (59) für die Mittel (13) zum Verstellen der Neigung in einem oberen Bereich des Sitzes (7) angeordnet sind, der leicht zugänglich ist, **dadurch gekennzeichnet, dass** die Betätigungsmittel (37) der Mittel (11) zum Verstellen der Höhe ebenfalls in einem oberen Bereich des Sitzes angeordnet sind, der leicht zugänglich ist.
2. Verstellbarer Hochstuhl nach Anspruch 1, **dadurch gekennzeichnet, dass** die Betätigungsmittel (37, 59) für die Mittel zum Verstellen der Neigung und der Höhe auf der hinteren Seite (39) des Sitzes (7) angeordnet sind.
3. Verstellbarer Hochstuhl nach Anspruch 2, **dadurch gekennzeichnet, dass** die Betätigungsmittel (37, 59) für die Mittel zum Verstellen der Neigung und der Höhe auf der Rückseite des Sitzes (7) angeordnet sind.
4. Verstellbarer Hochstuhl nach Anspruch 1, **dadurch gekennzeichnet, dass** die Betätigungsmittel zumindest einen Knopf (37, 59) umfassen.
5. Verstellbarer Hochstuhl nach Anspruch 4, **dadurch gekennzeichnet, dass** die Betätigungsmittel zwei Knöpfe (37) umfassen, die durch jeweilige ummantelte Kabel (33, 35) mit den Mitteln (11) zum Verstellen der Höhe des Sitzes vom Boden aus verbunden sind.
6. Verstellbarer Hochstuhl nach Anspruch 4, **dadurch gekennzeichnet, dass** die Betätigungsmittel einen Knopf (59) umfassen, der mittels eines ummantelten Kabels (61) mit den Mitteln (13) zum Verstellen der Neigung des Sitzes (7) verbunden ist.
7. Verstellbarer Hochstuhl nach Anspruch 1 oder 5, **dadurch gekennzeichnet, dass** die Mittel (11) zum Verstellen der Höhe des Sitzes (7) vom Boden aus Gleitstücke (17) umfassen, die entlang Beinen (19) des Gestells (3) verschiebbar sind, wobei jedes Gleitstück (17) einen Hebel (23) umfasst, der mit einem Haken (25) versehen, der dazu geeignet ist, in eine Öffnung (29) aus einer Vielzahl von Öffnungen (29) einzugreifen, die entlang dem Bein (19) des Gestells (3) ausgebildet sind, wobei der Haken (25) für gewöhnlich in einer Stellung gehalten wird, in der er in eine der Öffnungen (29) durch ein elastisches Element (31) eingreift, wobei das Kabel (33), das in einer Hülle (35) gleiten kann, ein erstes Ende, das an dem Hebel (23) befestigt ist, und ein zweites Ende hat, das mit einem der Betätigungsknöpfe (37) verbunden ist.
8. Verstellbarer Hochstuhl nach Anspruch 7, **dadurch gekennzeichnet, dass** jedes der Gleitstücke (17) ferner ein Rad (41) umfasst, das an dem vorderen Teil des Beins (19) gleiten kann, um ein Verklammern zu verhindern.
9. Verstellbarer Hochstuhl nach Anspruch 8, **dadurch gekennzeichnet, dass** ein Distanzstück (45) zwei der Gleitstücke (17) verbindet, die auf jeweiligen Beinen (19) des Gestells (3) verschiebbar sind.
10. Verstellbarer Hochstuhl nach Anspruch 6, **dadurch gekennzeichnet, dass** die Mittel (13) zum Verstellen der Neigung des Sitzes (7) ein Teleskopelement (47) umfassen, das mit einer inneren hohlen Stange (49) versehen ist, die mit den Gleitstücken (17) verbunden ist, die in einer hohlen Stange (51) ver-

schiebbar ist, die wiederum mit dem Sitz (7) verbunden ist; wobei ein hakenförmiger Hebel (53) mit der hohlen Stange (51) verbunden ist und dazu geeignet ist, mittels eines elastischen Elements (55), in einen aus einer Reihe von Sitzen (57) einzugreifen, die derart entlang der hohlen Stange (49) ausgebildet sind, dass durch das Wählen des in Eingriff genommenen Sitzes (57) die zweckmäßige Länge des Teleskopelements (47) und daher die Neigung des Sitzes (7) bezüglich des Gestells (3) variiert werden kann.

11. Verstellbarer Hochstuhl nach Anspruch 10, **dadurch gekennzeichnet, dass** der hakenförmige Hebel (53) durch einen Betätigungsknopf (59) betätigt werden kann, der mit dem hakenförmigen Hebel (53) durch ein ummanteltes Kabel (61) verbunden ist.

12. Verstellbarer Hochstuhl nach Anspruch 1, **dadurch gekennzeichnet, dass** das Gestell zumindest zwei Paar Beine (19) umfasst, die durch zwei Gelenke (5) wechselseitig drehbar sind, um ein sattelförmiges Öffnen der Beine (19) zum Gebrauch des Hochstuhls (1) oder das Schließen der Beine (19) zu ermöglichen, um die Gesamtabmessungen des Gestells (3) zu verringern.

Revendications

1. Chaise haute réglable, comprenant un siège (7) associé à un bâti (3) par l'intermédiaire de moyens (11) pour régler la hauteur du siège (7) et de moyens (13) pour régler l'inclinaison du siège (7) et des moyens d'actionnement (37, 59) pour lesdits moyens de réglage de hauteur (11) et pour lesdits moyens de réglage d'inclinaison (13), lesdits moyens d'actionnement (59) pour lesdits moyens de réglage d'inclinaison (13) étant disposé dans une région haute dudit siège (7) à laquelle on peut facilement accéder, **caractérisée en ce que** lesdits moyens d'actionnement (37) desdits moyens de réglage de hauteur (11) sont également disposés dans une région haute dudit siège à laquelle on peut facilement accéder.

2. Chaise haute réglable selon la revendication 1, **caractérisée en ce que** lesdits moyens d'actionnement (37, 59) pour lesdits moyens de réglage de hauteur et d'inclinaison sont disposés au dos (39) du siège (7).

3. Chaise haute réglable selon la revendication 2, **caractérisée en ce que** lesdits moyens d'actionnement (37, 59) pour lesdits moyens de réglage de hauteur et d'inclinaison sont disposés à l'arrière dudit siège (7).

4. Chaise haute réglable selon la revendication 1, **caractérisée en ce que** lesdits moyens d'actionnement comportent au moins un bouton (37, 59).

5. Chaise haute réglable selon la revendication 4, **caractérisée en ce que** lesdits moyens d'actionnement comportent au moins deux boutons (37) qui sont associés, par l'intermédiaire de câbles gainés respectifs (33, 35), avec les moyens (11) pour régler la hauteur du siège par rapport au sol.

6. Chaise haute réglable selon la revendication 4, **caractérisée en ce que** lesdits moyens d'actionnement comportent un bouton (59) qui est associé, par l'intermédiaire d'un câble gainé (61), avec lesdits moyens (13) pour régler l'inclinaison du siège (7).

7. Chaise haute réglable selon la revendication 1 ou 5, **caractérisée en ce que** lesdits moyens (11) pour régler la hauteur du siège (7) par rapport au sol comporte des blocs coulissants (17) aptes à coulisser le long de pieds (19) dudit bâti (3), chaque bloc coulissant (17) comportant un levier (23) pourvu d'un crochet (25) conçu pour s'engager dans un trou (29) parmi une pluralité de trous (29) formés le long du pied (19) du bâti (3), ledit crochet (25) étant normalement maintenu dans la position d'engagement dans l'un desdits trous (29) par un élément élastique (31), ledit câble (33) qui peut coulisser dans une gaine (35) ayant une première extrémité fixée audit levier (23) et une deuxième extrémité associée à l'un desdits boutons d'actionnement (37).

8. Chaise haute réglable selon la revendication 7, **caractérisée en ce que** chacun desdits blocs coulissants (17) comporte encore une roulette (41) qui peut coulisser sur la partie avant du pied (19) pour éviter un coincement.

9. Chaise haute réglable selon la revendication 8, **caractérisée en ce que** une pièce d'écartement (45) relie deux desdits blocs coulissants (17) qui peuvent coulisser sur des pieds respectifs (19) dudit bâti (3).

10. Chaise haute réglable selon la revendication 6, **caractérisée en ce que** lesdits moyens (13) pour régler l'inclinaison du siège (7) comportent un élément télescopique (47) pourvu d'une barre intérieure creuse (49) associée auxdits blocs coulissants (17), apte à coulisser à l'intérieur d'une barre creuse (51) elle-même associée audit siège (7); un levier (53) en forme de crochet étant associé à ladite barre creuse (51) et étant apte à s'engager, sous l'action d'un élément élastique (55), dans un siège appartenant à une série de sièges (57) formés le long de

ladite barre creuse (49) de façon qu'en choisissant le siège (57) dans lequel est engagé le crochet, on puisse modifier la longueur utile de l'élément télescopique (47) et donc l'inclinaison du siège (7) par rapport au bâti (3).

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11. Chaise haute réglable selon la revendication 10, **caractérisée en ce que** ledit levier en forme de crochet (53) peut être actionné à l'aide d'un bouton d'actionnement (59) associé audit levier (53) en forme de crochet par l'intermédiaire d'un câble gainé (61).

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12. Chaise haute réglable selon la revendication 1, **caractérisée en ce que** ledit bâti comporte au moins deux paires de pieds (19) pivotant l'une par rapport à l'autre par l'intermédiaire de deux articulations (5) afin de permettre auxdits pieds (19) de s'ouvrir comme un compas pour utiliser ladite chaise haute (1) ou la fermeture desdits pieds (19) afin de réduire les cotes d'encombrement dudit bâti (3).

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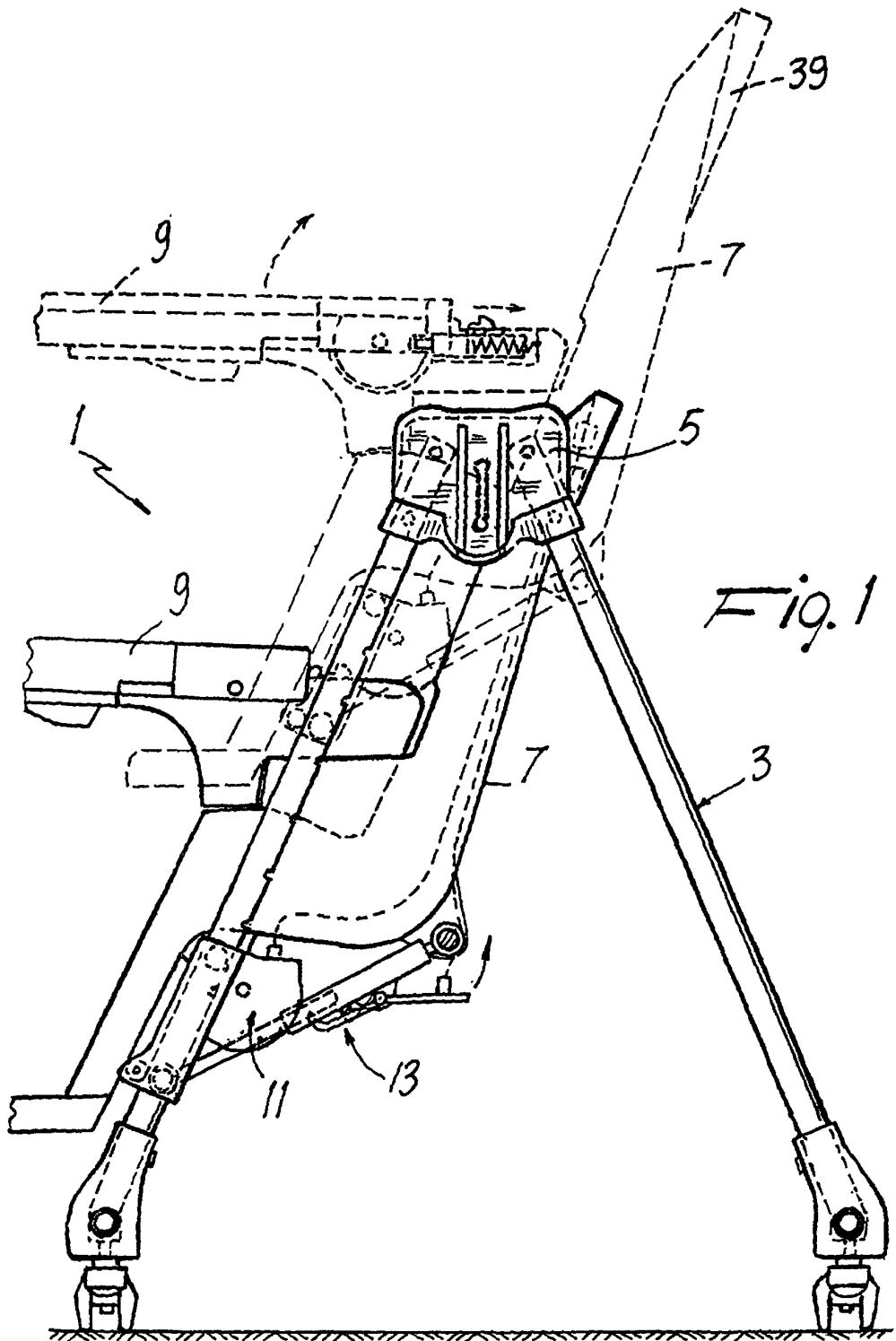
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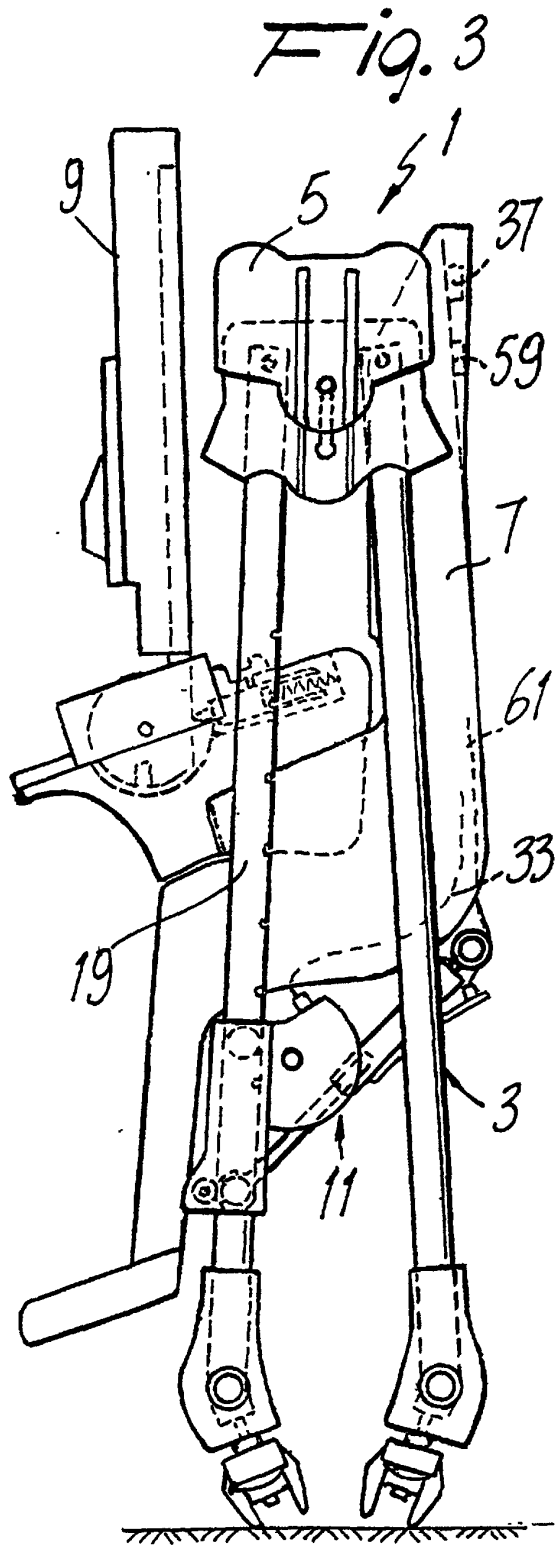
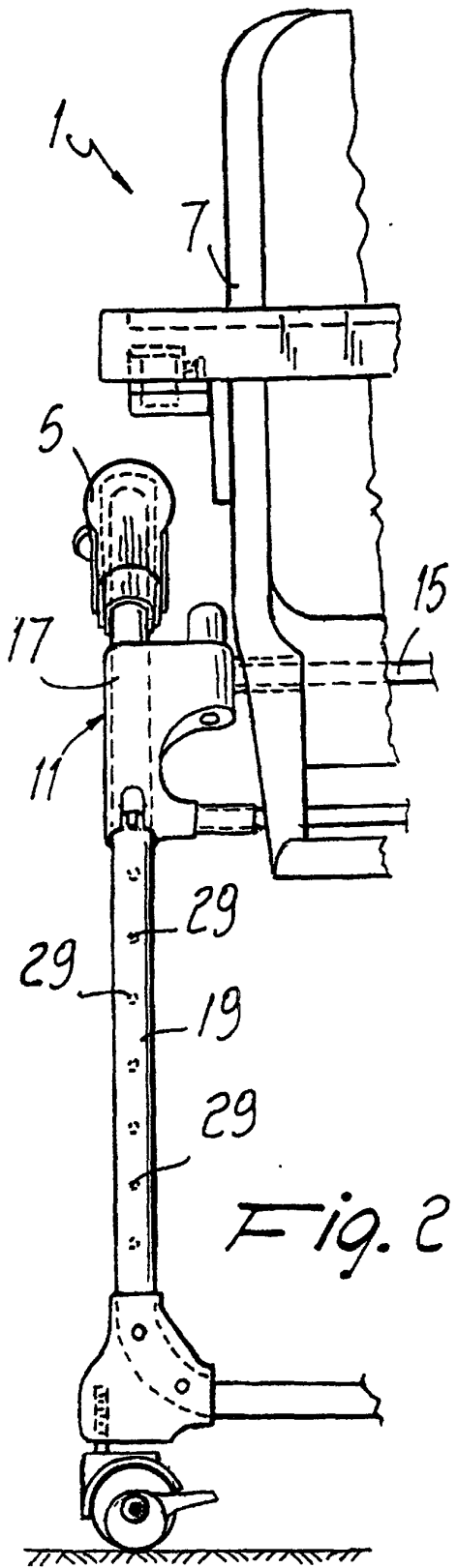
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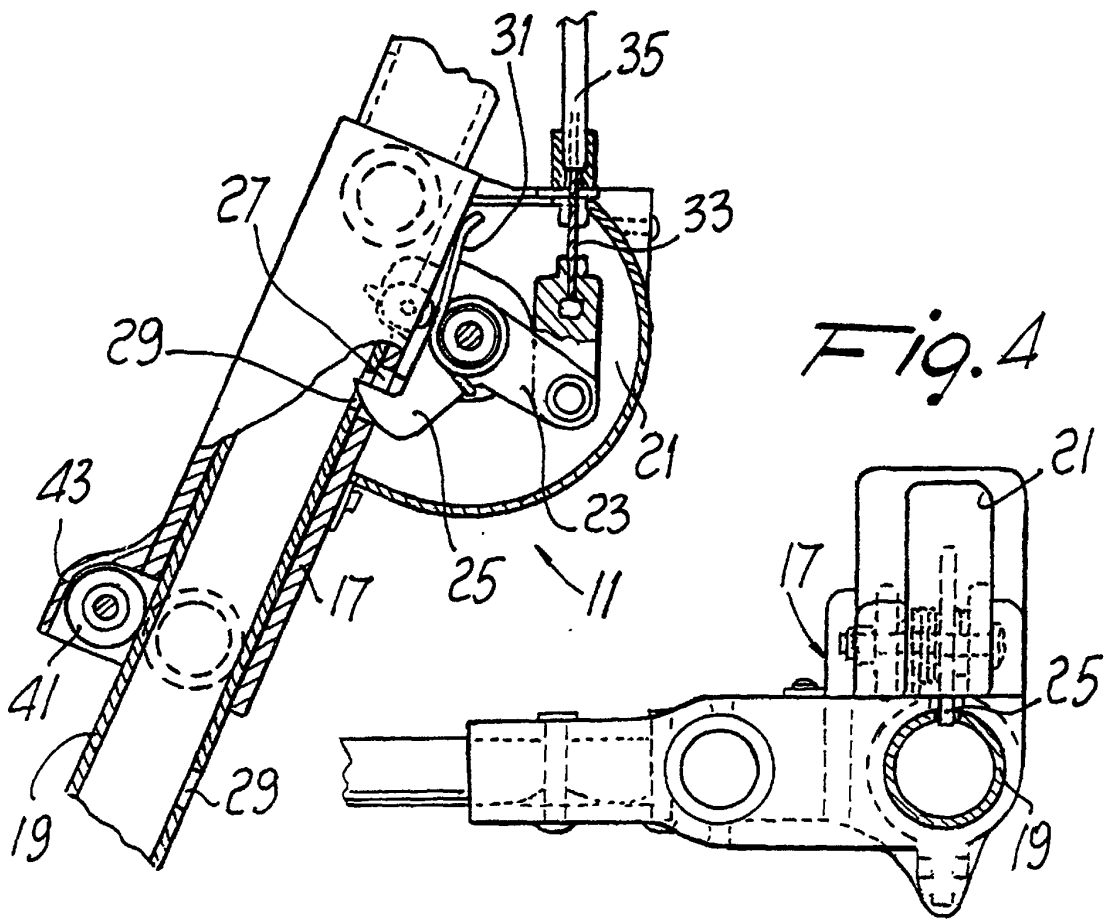


Fig. 5

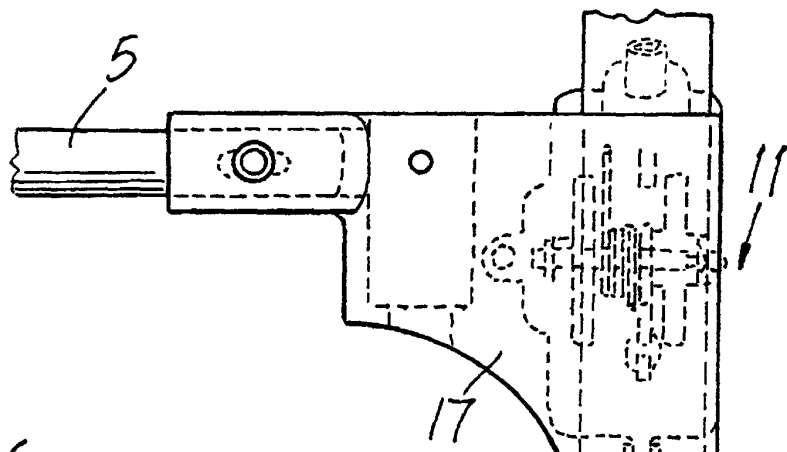
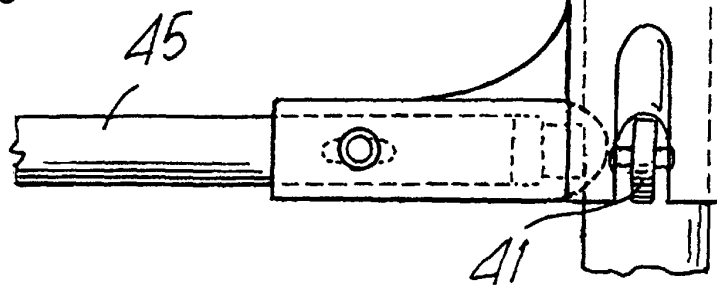


Fig. 6



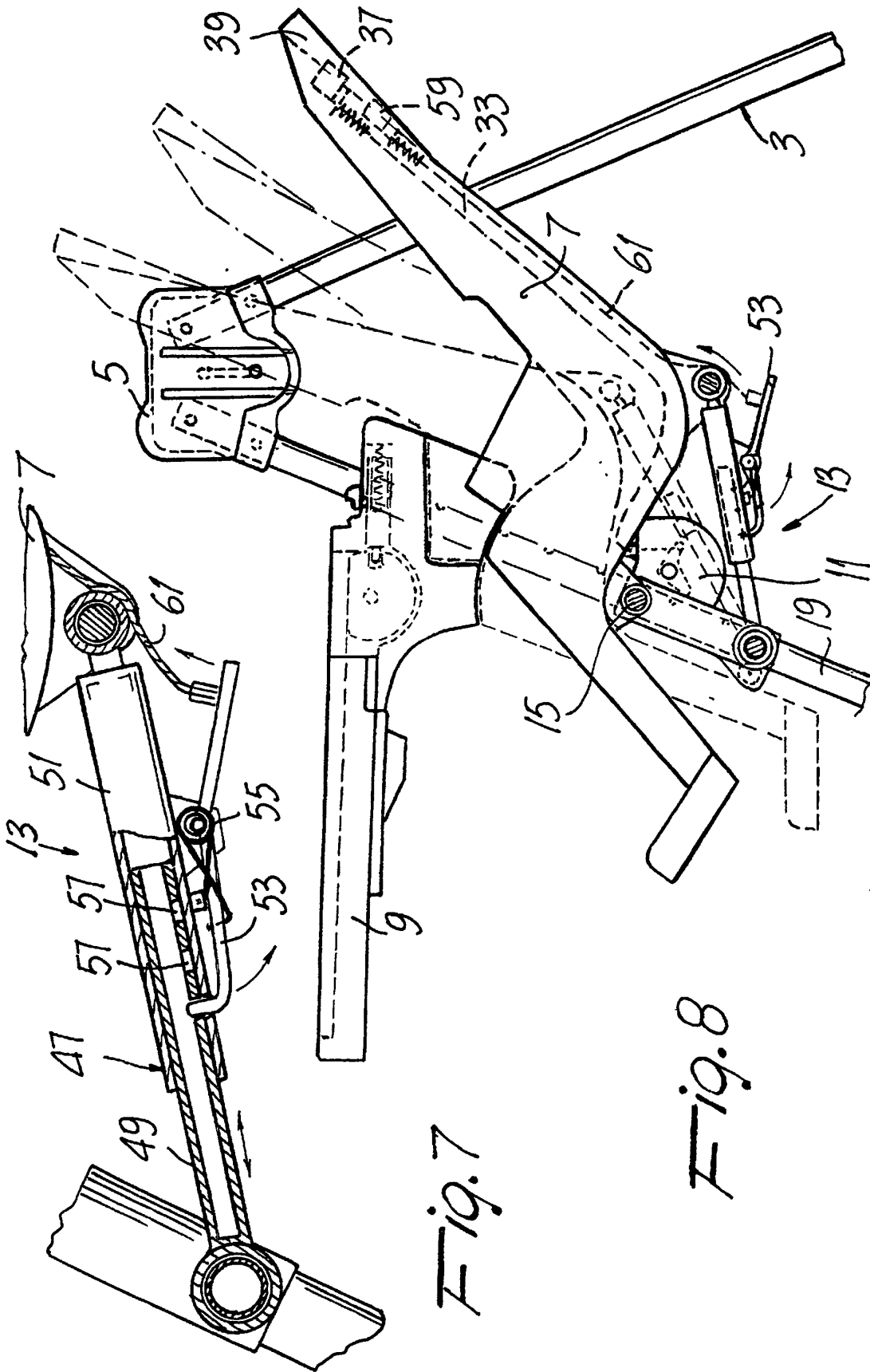


Fig. 7

Fig. 8